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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/730,006

12/09/2003

Yasuyuki Kamijo

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7590

03/28/2007

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.

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WASHINGTON,, DC 20036

EXAMINER

HUG, ERIC J

ART UNIT

PAPER NUMBER

1731

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/730,006	KAMIJO ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Eric Hug	1731	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-10 and 12-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-10 and 12-14 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 26, 2007 has been entered.

***Claim Objections***

Claim 4 is objected to under 37 CFR 1.75 as being a duplicate of claim 3.

See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tschirner (EP 0 494 519).

Tschirner discloses a process for producing mechanical pulp, see page 5, lines 10-49. Prior to initial refining, wood chips are impregnated with a chelating agent prepared as an aqueous solution. Note that the disclosed wood species include fir and pine which are deemed to read on the claimed species. A preferred pH range for the impregnating solution is 8-11. Sodium hydroxide can be used in the solution. The chips are first squeezed by compression, then allowed to expand while in contact with the impregnation solution. Note that line page 5, line 45

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teaches against the use of peroxide in the impregnation solution. After a certain amount of time in contact with the solution, the chips are compressed to expel the solution. Defiberizing of the chips into pulp is done next by refining. Post-refining bleaching of the pulp is then done using a peroxide bleach. See page 6, line 38 to page 7, line 3 for defibration and bleaching. From this point on, the pulp can be further processed to make suitable for making paper products. The process resulted in a pulp with higher brightness and a substantial reduction in the amount of peroxide bleaching agent compared to pulp made via a comparison prior art process (page 7).

Tschirner discloses all the claimed processing steps except for secondary refining. However, secondary refining is well recognized in the art of papermaking as being necessary for defibrillating fibers and producing pulp with a designated degree of freeness. The primary refining defibers the wood chips, but does not itself produce pulp suitable for papermaking. Secondary refining is also necessary to provide a sheet with good formation and sufficient tensile strength. At the time of the invention, it would have been obvious to one skilled in the art to subject the pulp of Tschirner to secondary refining for the above reasons.

The compression ratio given by claims 3 and 4 also is not disclosed by Tschirner. Nevertheless, Tschirner recognizes that compression before impregnation impacts the amount of chemical absorbed by the chips, and that compression after impregnation impacts the amount of solution expressed from the chips and thus the amount of metallic ions removed from the chips. Also, compression after impregnation increases the solids content to a level desirable for primary refining. Therefore, one skilled in the art would recognized optimizing the degree of compression to a level to obtain at least the above advantages.

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2. Claims 1 and 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lindahl (US 4,599,138)

Lindahl discloses a process for pretreating particulate lignocellulosic material such as wood chips to remove heavy metals and resin and then reducing the material to pulp. The process comprises steps of compressing the material, impregnating the compressed material with an alkaline aqueous solution comprising alkali and a heavy metal ion complexing agent, compressing the material to squeeze out liquid and increase the solids content. The conditions during the pretreating are such that the pH of the impregnating solution is within the range from about 4 to about 9.5, which overlaps the claimed pH range. After pretreating, the chips are fed to a disc refiner (14) where they are defibrated into individual fibers. This defibrated material is passed to a second disc refiner (16) which yields pulp for papermaking. Bleaching chemicals may be provided at duct (15) in conjunction with the primary refiner or in conjunction with the secondary refiner (column 15, lines 10-25). Bleaching is not limited to these locations (column 19, lines 14-22).

The compression ratio given by claims 3 and 4 also is not disclosed by Lindahl. Nevertheless, Lindahl recognizes that compression before impregnation removes liquid that may be absorbed in the chips, and that compression after impregnation impacts the amount of solution expressed from the chips and thus the amount of metallic ions and alkali-extracted substances removed from the chips. Also, compression after impregnation increases the solids content to a level desirable for primary refining. Therefore, one skilled in the art would recognized optimizing the degree of compression to a level to obtain at least the above advantages.

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3. Claims 8-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kilgannon et al (US 7,018,509). Kilgannon qualifies as prior art under 35 U.S.C. 102(e).

Kilgannon discloses a process for manufacturing bleached thermomechanical aspen pulp, wherein the process the pulp is washed prior to or after bleaching. Steamed wood chips are introduced into a refiner where they are broken down into fibers. After the refining is at least one bleaching stage. A washing stage is subsequent to the refining stage and may be before the bleaching stage. Washing provides the pulp with a higher ISO brightness than would be obtained in the absence of washing. See column 3, lines 32-49. The consistency (solids content) of the pulp during washing is preferably less than 5%. See column 3, lines 56-61. Washing is performed preferably at room temperature. Preferred washing temperatures are given in column 3, line 62 to column 4, line 4. Exemplary bleaching agents are given in column 4, lines 5-20. The pulp can optionally be conveyed to a secondary refiner for further refining. The secondary refiner provides a pulp having the desired freeness and fiber length suitable for papermaking. See column 6, lines 39-48.

All the features of the claims are represented by Kilgannon except for the claimed range of Hunter brightness for the bleached mechanical pulp. However, since Kilgannon reports improved brightness in ISO units, the claimed Hunter brightness is deemed to be obvious in view of Kilgannon as being merely an alternative measurement of pulp brightness. Even if the brightness values of Kilgannon are lower than the claimed Hunter brightness, the teachings therein do not depart from the claimed brightness. One skilled in the art would recognize performing the steps of the method in an optimum manner that would achieve the highest possible pulp brightness.

***Response to Arguments***

Applicant's arguments filed February 6, 2007 have been considered. The Declaration filed on February 6, 2007 has also been considered. In view of the arguments and amendments, the rejections set forth have been withdrawn. A new grounds of rejection is set forth above.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Textor (US 3,023,140) discloses refining wood chips in a first refiner and in the presence of a chelating agent prior to bleaching.

Hoglund et al (US 5,607,546) discloses a process for producing thermomechanical pulp which includes successive steps of defibering and washing.

Kamijo et al (JP 2002-294574) discloses compressing chips vertically to its fiber direction, immersing the chips in 2-5% alkali solution containing about 0.2-0.5% chelating reagent, and then adding 2-7% alkaline hydrogen peroxide just before primary refining.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Hug whose telephone number is 571 272-1192. The examiner can normally be reached on Monday through Friday, 10:00 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Eric Hug